Sept. 30, 1986

To: Steve Trombulak
From: Shel Sax
Subject: Environmental Studies Program

- Basically, I think it a wise change to implement a Social Science track to the program. I was not here when this approach was last tried, so cannot comment as to its effectiveness.

- I would suggest that the course choices in Economics be somewhat more proscribed. In particular, I think that the basic courses in statistics should be mandatory. I don't see how anyone can have something analytical to say about resources and the environment without basic training in these quantitative techniques. Consequently, I would suggest that Economics 210 be made mandatory (or some basic statistics course in another discipline, Geography, for example). As well, I would stronly recommend that Economics 211 be a requirement.

- Because a lot of the analysis pertaining to natural resources and environmental economics has a microeconomic slant, I would require Economics 355 as one of the 300 level courses. I agree with D.K. that the 400 course requirement be dropped. This is not because I think the requirement burdensome, but rather, at present, there really is no 400 level economic course that would complement the major. In fact, after D.K.'s retirement, it is not certain that either Ec 365 or 395 will be taught.

- I do not think that the thesis should be a requirement of the major. Writing a thesis is such a major undertaking that it should only be done willingly. However, some sort of applied project would be beneficial.

I'm sorry to be getting this to you so late, but it got buried. If there's anything more that I could help you with, let me know.

Call in morning

Department of Political Science
September 29, 1986

To: Steve Trombulak, Biology

cc: Bob Gleason, for the Curriculum Committee

From: Eric Davis, Department Chairman EDD

Subj: Environmental Studies Program

Thank you for asking me for my comments on your proposed changes in the Environmental Studies Program.

I have no problems with the Natural Science track which you have proposed, and with the inclusion of PS 104 as a required course in that track.

I urge you to reconsider the Social Science/Humanities track which you have proposed, and the role of PS courses in that track. My basic problem is with the inordinately large number of required courses for students in that track. I do not believe that any major at Middlebury College should require 20 courses, which is the case under the proposal as currently presented. A major with that many required courses leaves students very little flexibility in course selection after the freshman year. It permits them few opportunities to take courses in departments and divisions of the college unrelated to the ES major. And it will surely result in many cases of scheduling conflicts, inability to take courses because of instructors on leave, requests for approval of transfer credit for courses taken elsewhere, etc. All of this will impose an enormous administrative burden on the director of the program.

I would suggest that you reformulate the Social Science/Humanities track so that the number of required courses is reduced from 20 to 16, half of a student's Fall and Spring courses. I would also ask that you give students in this track the option of taking either PS 104 or PS 208 as their required Political Science course. For those students doing Political Science as their focal area, any four courses in the department at the 200-level or above should suffice.

I object to the requirement that ES majors must take a 400-level Political Science course. We have between 80 and 90 of our own majors in each graduating class. We already have difficulty mounting a sufficient number of seminars for our senior majors each year. We do not require a 400-level course for our concentrators; I see no reason why we should do so for ES majors.

MEMORANDUM

September 23, 1986

TO: Steve Trombulak

FROM: Bob Churchill

RE: Environmental Studies

Many thanks for sharing your ideas and the draft of the curriculum proposal. I am most willing to help in any way I can, including as an advisor for students interested in the geography focus. I offer the following reactions to and thoughts on your proposal for what they are worth.

In my estimation the major problems with the program historically have been: 1) lack of clear, progressive leadership; 2) lack of program identity, both among students and faculty; and 3) lack of substantive commitment from the College. These problems are so integrally related that it is impossible to ascribe relative levels of importance. The two problems you identify in your memo I believe to be more perceptual than real (which, of course, makes them real). In particular, there are undoubtedly students who major in the program because it appears easy, but the majority of people I have worked with can be typed more by their particular interests and passions than by lack of enthusiasm for hard work. Some of the very best students I have known, in fact, have been environmental studies majors, which is the primary reason I continue to be committed to the idea of a program. I believe that the academic focus and substance of the program and whether it is wedded to biology or Chinese, at this point, are less important considerations than convincing interested students that there <u>is</u> a quality program.

I think your proposal is generally excellent, and I have only a couple concerns -- or more accurately, concerns that I suspect may arise among members of the faculty. First, the existing curriculum has been in place less than two years, and in this environment of rampant conservatism, you will undoubtedly be forced to explain another new structure. Second, and while I agree completely with your reasoning, a 20-course major may require a compelling defense.

The only substantive element of the proposal that concerns me is the lack of an inferential statistics course. I also might suggest a couple minor changes in the geography courses at some point, as the proposal progresses. Physical Earth Processes (GG250), which is listed under the Social Science and Humanities focus, is really a physical science course. Similarly, the distinction between 200- and 300-level courses in our department is one between substantive electives versus techniques and methods respectively.

In the event you find my comments and reactions here sketchy or incomplete, I would be happy to discuss them with you in greater detail; and please do not hesitate to be in touch any time that I can help in any way.

MIDDLEBURY COLLEGE
MIDDLEBURY, VERMONT 05753

David K. Smith
Alumni Professor of Economics

9/22/86

Memo to Steve Trombulak

Subject: Environmental Studies Program

Steve - Glad to see that you're moving forward in a re-thinking of Environmental Studies.

Comments begin by noting that I enthusiastically support the restoration of tracks on the very modest basis proposed: Social Sciences/Humanities. Tracks were specifically eliminated a few years ago, and I regretted that. To have the study so focussed on Biology seemed to me to miss a great deal of what lays behind environmental problems.

Not all departments can do this

I would argue for certain adjustments in your proposals. First, I would have all majors write a thesis. This has been the most useful part of the Environmental Economics major which used to be. All need an excercise in applying book learning in a real world situation.

No

I would require at least one term of Statistics for all majors, for evaluating the Environment is very much a matter of collection and examination of data. What is the message carried in the data?

?

I would require Ec 365 as long as it is taught, and then hope that if Natural Resource Economics carried on beyond my retirement that its content would include certain elements of 365.

Compounds the trouble

On Page 3, I would drop the four courses under the various foci to two and eliminate the 400 series course. In many cases, there won't have been the prerequisites, and I doubt that simply requiring more courses [redacted] can be justified

A hint: I'd re-read the text and change to students who (rather than that) or people who (rather than that) etc.

Cheers -

D.K. Smith

September 22, 1986

TO: Steve Trombulak, Biology

FR: Ray Coish, Geology

RE: The Environmental Studies Program

Lucy, Brew, and I have gone over your good proposal for a more focused program in Environmental Studies.

We like what you are proposing. It is good to attract people who are not in the natural sciences. The 13 or 14 core courses in the two tracks should give all environmental studies majors a solid foundation, including areas that you term "hard". The core courses deliberately do not stress any one department. And, it is good that each student have a clear focus -- an area of competence.

We do ask to modify the geology focus:

Geology: 4 courses at the 200-300 level, 1 course (not 2 courses) **at the 400 level, 2 units of GL 700** (new).

There are two reasons for the change from what you have proposed. First, our 400-level courses are directly tied to senior research, and our geology majors are not likely to take more than one 400-level course. Second, we have long required a senior thesis of each person who majors in geology. We find that essentially every geology senior benefits from senior research, whether or not the person is getting good grades. This was the case for those majoring in Environmental Studies - Geology under Howard Woodin's program. We want to keep this requirement. If our position causes you any problem, let me know.

November 5, 1986

Memo to: Educational Council

cc: Curriculum Committee
Stephen Trombulak

From: Robert W. Gleason

Subject: Academic "Double Dipping"

Several weeks ago Professor Trombulak, who is Director of the Environmental Studies Program, posed a hypothetical question to the Curriculum Committee. Suppose an Environmental Studies major completed the course of study in that program and in addition completed the courses required of a major in the Department of Biology. Would such a student, considering the fact that several courses taken to satisfy the requirements of the Environmental Studies major are also required of students completing a major in Biology, be credited with completing a double major?

Having discussed this matter for several minutes with no resolution in sight, we concluded that the question was really outside of our competence but clearly within the purview of the Educational Council. I would be grateful if you would share your conclusion with Professor Trombulak.

RG/jl

To: Michael Claudon and Richard Cornwall; Department of Economics

From: Steve Trombulak; Department of Biology, Director of the Environmental Studies Program

Subject: The new program in Environmental Studies

As you may or may not know, I was asked last year by the administration to take over the Environmental Studies Program and to see if I could do something to save it from dying. My efforts so far have been to drastically strengthen the requirements for graduation so that it isn't the weakest of all the majors on campus and so that the ES majors aren't simply ~~a group of one or two~~ students that don't want to take the hard courses in any other department. I've enclosed a copy of the program requirements that were recently approved by the curriculum committee. The main differences from the previous program involve 1) the requirement of more courses, 2) the requirement of more courses above the 100 level, and 3) the reinstatement of a required focus within a department. This latter requirement is to insure that ~~a~~ students graduate with a strong background in at least one discipline, and was designed for each department in cooperation with the faculty that would work with environmental studies students that ~~had~~ have particular interests in that discipline.

In recent conversation with Shel Sorf I learned that your department is currently deciding on what courses to teach during the near future. I want to make sure that you ~~all~~ are aware of the continued place of economics courses in the ES program and that the program will continue to exist independent of whatever happens to the environmental studies track of the economics major.

Courses in the Economics department fit into the new ES program in two ways. First, students in the Natural Science track may choose to take EC 365 and 394 to satisfy two of their required cognates. Second, students in the Social Science/Humanities track are required to take EC 155 and either 365 or 394. Finally, students who focus in Economics are additionally required to take EC 150, 210, 355, and an additional course of their choice. The focus, by the way, represents a compromise ~~I mediated~~ between a six-course focus emphasizing quantitative skills proposed by Shel (comparable to other foci) and a ~~small number of courses~~ three course focus proposed by D.K. I intend the foci to be shaped by the interested faculty in the departments; therefore, if you have any recommended changes, I would love to hear them.

Compared to the number of students in other departments, ES majors are not numerous, but I see signs that the appearance of life in the program may change things. Prior to this fall, there were only seven majors, one who has withdrawn from school, one who has flunked out, and one who went on special student status in order to salvage his grades. Not exactly the cream of the crop. Since this fall, however, I have had 10 freshman, who so far seem to be academically sound, express their intention to major in ES. I am encouraged by this indication of interest by good students in the program and hope that, by demonstrating that the College wants a good program to survive, students will respond.

The gist of all of this is that I want the Economics department to know that the ES program will continue even after D.K. retires and that it stands a good chance gaining strength and numbers. I know that teaching resources are tight and must be preferentially allocated to satisfying the needs of departmental majors. However, your department can provide a service to the College community by teaching a course like EC 365 or 394 at least every other year and by attempting to keep someone on the faculty of the department who can teach these subjects and advise interested students.

If you have any reactions to my requests or questions about the Program I would be more than happy to talk with you about it at your convenience. Don't hesitate to give me a call.

February 18, 1987

Memo to: Cindy Rigg

cc: Jean Blodget, Steve Trombulak, Lynne Baker, Ray Coish

From: Robert W. Gleason

Subject: Curriculum Committee Action

At its meeting on Tuesday, February 17 the Curriculum Committee voted to:

1. Reconsitutute CN 086 Logic and Philosophy of Science to include:

    1. PA 180, Introduction to Modern Logic

    2. PA 230, Philosophy of Science

    3 and 4. Any two of the following:

        PA 212, Introduction to the History of Modern Science

        PA 223, Introduction to Contempory Philosophy

        PA 280, Intermediate Logic

        PA 354, Philosophy of Language

        PA 355, Issues in the Philosophy of Time

2. Reconstitute CN 016, Environmental Science to include:

    1. GL 112, Environmental Geology

    2. BI 190, General Ecology

    3. GG 230, Social Aspects of Environmental Conservation

    4. EC 365, Environmental Economics (NS)

    5. GG 254, Weather and Climate or

        BI 390, Advanced Ecology (SS/H/FL)

3. Approve a new concentration, History and Philosophy of Science constituted of the following courses:

    1. PA 212, Introduction to the History of Modern Science

    2. PA 230, Philosophy of Science

    3 and 4. Any two of the following:

        CL 220, Introduction to Greek Science

        MA 240, History of Mathematics

        PA 331, History of Materialism

        PA 355, Issues in the Philosophy of Time

4. Approve a new concentration, Geology and Ecology of Vermont constituted of:

    1. GL 112, Environmental Geology

    2. BI 190, General Ecology OR
       BI 202, Vertebrate Life

    3. GL 201, Bedrock Geology of Vermont

    4. BI 390, Advanced Ecology OR
       GL 321, Sedimentary Rocks OR
       BI 302, Vertebrate Field Biology

September 20, 1987

Memo to: Richard Cornwall

cc: John McCardell
Bruce Peterson
Steven Trombulak

From: Robert Gleason

Subject: Structure of the Economics Curriculum

As you and your colleagues develop plans for the future of the economics curriculum at Middlebury I know that the place of accounting will be one of several foci of your discussions. I write simply to remind you that the course David Smith has taught in Environmental Economics has played an important role in our Environmental Studies Program. I would hope than in recruiting colleagues to fill openings in your department you would be sensitive to this fact and cite interest in environmental economics as one of possibly several areas of interest which we would find attractive.

RG/jl

December 14, 1987

Memo to: Stephen Trombulak

cc: Jean Blodgett

From: Robert Gleason RG.

Subject: Changes in the Environmental Studies Program

At the a recent meeting of the Curriculum Committee, it was voted to approve the changes in the Environmental Studies Program you recommended in your memoranda of November 3, 1987. By sending a copy of this memo and a copy of your memos to Jean Blodgett, I am asking her to ensure that the next edition of the catalogue reflects these changes.

RG/jl

December 12, 1986

Memo to: Stephen Trombulak

cc: Randy Landgren

From: Robert W. Gleason RWG.

Subject: Curriculum Committee Action

At one of the last meeting of the Curriculum Committee (November 5) your revised curriculum for the Environmental Studies Major was approved. The members of the Committee wanted me to convey to you their sense of appreciation for the good job that you have done and their sense of disappointment that the members of the Department of Political Science apparently have little enthusiasm for continuing their involvement in the Program.

RG/jl

To: All Environmental Studies faculty

From: Steve Trombulak, Director of the Program

Re: News and current events

A number of things have happened for us in Environmental Studies that I thought you would be interested in hearing about.

The first is that the Curriculum Committee has approved my proposal for a new Environmental Studies course on Environmental Policy Formation (ES 401). I have attached a copy of the description that will appear in the catalog. This course will be taught by one or more members of the ES Program and will be offered for the first time next Fall Semester, and every fall thereafter. Please note that it is restricted to Juniors and Seniors. The reason for this is that the course is designed specifically for students that want to work in a group on a research project and to use information drawn from a variety of courses. This means that they need to have taken a variety of courses and have the academic maturity to work independently to pull that information together. I don't know yet how this course will fit in to the major. Obviously, it will not be required for any current major to graduate (because they are responsible for the requirements at the time they became an ES major) but I'd like to see if I can devise a way for them to get ES credit for it. I'll be asking you about your ideas on this in the near future.

The second item of interest is the arrival of Jack Schmidt on the faculty in Geology and Geography. His principle areas of interest are geomorphology, water resources, and resource development policy. He has specifically worked on projects relating to the effects of dam operations on sand bars, the relationship between wildfires and soil erosion, and the environmental effects of mining and energy fuels development. For three years prior to coming to Middlebury, Jack was a hydrologist with the U.S. Geological Survey in Tuscon. He helped both the Carter Administration write the Federal Regulatory Program for coal strip mining and the Office of Technical Assessment in Congress analyze coal leasing policies. Jack is very excited about working with us in ES and I encourage all of you to introduce yourself to him when you can. Jack will work with Brew Baldwin, Lucy Harding, and Ray Coish to administer the geology focus and Bob Churchill and Timi Mayer with the Geography focus.

The next item is that Governor Madeline Kunin has accepted our invitation to speak on April 11th at 7:30 pm on environmental protection and economic growth in Vermont. Her talk is the first in a planned annual lecture series on Environmental Affairs. I'll be talking with all of you about this as time goes on but I will very much need your help in pulling this event off. As most of you know, one of the purposes of the Lecture in Environmental Affairs to to demonstrate to the College the importance of a broad perspective of and support for the ES Program. We are going to do a great deal of publicity to attract as many people from the College, county, and environmental community as we can. Also, if we can squeeze a few more dollars out of the College, Jack Schmidt thinks he can Michael Clark, President of the Environmental Policy Institute in Washington, D.C. to come up and give us a talk this spring.

Next, the College has approved my request that the ES Program undergo an external review next year. Our budget request for 1988-89 includes money to bring in three people for 1 or 2 days. I have tentative from Carl Reidel at UVM, Nan Jenks-Jay at Williams, and Jim Hornig at Dartmouth to come over and help us out.

Finally, it has been suggested to me that all of us associated with the ES Program should get together sometime this spring to talk about where we want to take the program in the next few years. I agree. I realized that all the many changes that the program has gone through in the last 18 months have been hammered out on the phone. The trouble is that many of us have never or rarely met and that with over 15 faculty associated with the program this method is getting unwieldy. I'd like to schedule a lunch get-together sometime before spring break (certainly before All-College Meeting Night) to talk specifically about the new course and next years external review. You'll hear from me again.

That's it for now. Give me a call if you have any questions.

To: All Environmental Studies faculty and students
From: Steve Trombulak

The following changes to the ES major have been approved by the Curriculum Committee.

1) Substitute CH 172 (Environmental Chemistry) for CH 170 (Chemistry for Citizens) as a cognate for the Social Science/Humanities Track. CH 170 will continue to count as a cognate **only** for those students **that have already taken it**.

2) Substitute PS 104 (American Political Process) as a cognate in the Natural Science Track with PS 104 (American Political Process) **or** PS 208 (U.S. Congress). Students that have already taken PS 208 may count it toward their major. Note that you may count only one of these two courses.

3) Add EL/AL 113 (Visions of Nature) to the list of cognates in the Natural Science Track. Students that have already taken EL/AL 113 may count it toward their major.

4) Add the following focus to the Social Science/Humanities Track:

Literature and Writing

a) EL 107 (Journal and Essay) **or** EL 160 (The Structure of Nonfiction) **or** EL 170 (The Structure of Fiction)
b) EL 260 (Intermediate Workshop: NonFiction)
c) EL 213 (English Romanticism)
d) EL/AL 113 (Visions of Nature)
e) AL 202 (American Literature: 1830-1865)
f) CS 225 (Classical Chinese Poetry in Translation)

Students interested in the Literature and Writing focus should talk to John Elder in the Department of English, who will coordinating this focus for us. I am very excited about the addition of this focus to the major and the fact that John has joined us in the Program. Welcome aboard, John!

Still under consideration by the Curriculum Committee are the requests for changes that you all made during advising week and my proposal for a new upper level course (ES 401: Environmental Policy Formation). Stay tuned.

To: Curriculum Committee
From: Steve Trombulak, Environmental Studies
Re: Additions to the requirements for the major in Environmental Studies

John Elder is interested in participating in the Program in Environmental Studies and in offering a focus aimed at students interested in environmental writing or journalism. We would like to request that the following additions to the major in Environmental Studies be approved.

1) EL/AL 113 (Visions of Nature) added to the list of cognates for students in the Natural Sciences Track. Although this is a 100-level course, students will still be required to take 2 of their 4 cognates above the 100 level.

2) A focus called *Literature and Writing* added under the Social Science/Humanities Track. The requirements for this focus would be as follows:

a) EL 107 (Journal and Essay) **or** EL 160 (The Structure of Nonfiction) **or** EL 170 (The Structure of Fiction)
b) EL 260 (Intermediate Workshop: NonFiction)
c) EL 213 (English Romanticism)
d) AL 202 (American Literature: 1830-1865)
e) EL/AL 113 (Visions of Nature)
f) CH 225 (Classical Chinese Poetry in Translation)

I have spoken to the chairpersons of the three represented departments and they have all agreed to have courses in their departments listed with the ES Program.

To: Dean Gleason, for the Curriculum Committee
From: Steve Trombulak, Environmental Studies
Re: Additions to the requirements for the major in Environmental Studies
Date: 3 November 1987

I would like the following two changes in the ES major approved:

1) Substitute CH 172 (Environmental Chemistry: The Chemistry Around Us) for CH 170 (Chemistry for Citizens) as a cognate for the Social Science/Humanities Track. The former course is more relevant to the major.

2) Substitute Political Science 104 (American Political Process) as a cognate in the Natural Science Track with Political Science 104 (American Political Process) **or** PS 208 (U.S. Congress). This change simply gives the Natural Science students the same options for Political Science cognates as Social Science/Humanities students have for their core courses. It also increases the number of cognates above the 100 level.

To: The Faculty Long-Range Planning Committee
From: Steve Trombulak for the Environmental Studies Program

SUMMARY OF LONG-RANGE GOALS FOR THE ENVIRONMENTAL STUDIES PROGRAM

The Environmental Studies Program has gone through a tremendous amount of change in the past 18 months that demonstrates the pattern of growth expected over the next several years. The Program has gone from 5 participating faculty servicing fewer than 6 students and offering no courses to over 15 faculty in three divisions and 9 departments working with 30 students and offering one 400-level course. Recent faculty appointments in Geology, Geography, and Sociology/Anthropology, and an expected appointment in Economics, have radically strengthened the Program at the junior faculty level. Recent participation by senior faculty previously unassociated with the Program, particularly English, Sociology/Anthropology, and Philosophy provide important new contributions from the Social Science and Humanities Divisions. Our new 400-level course will provide students their only interdisciplinary coursework experience, and for many their only research experience, in an essentially interdisciplinary, research-oriented field. The Diector of the Program now holds a position on the Executive Board of the new journal International Environmental Affairs. The coursework required for the major has been changed so that students are required to take roughly the same number as those in other majors, a substantial number of courses at all levels, and courses that emphasize both interdisciplinary breadth as well as depth in a specific field.

It is based on these recent changes, and those that we anticipate will be recommended when the Program undergoes its external review next fall, that we offer this list of our expected long-range needs.

1. Staffing:

ES Positions: As the Program grows and develops it will be essential that a tenure-track position be added specifically to administer and teach courses in the Program. It is envisioned that this person would perform a function similar to that currently being done by William Howland for the Program in Northern Studies. An alternative is that the Director would be half-time in ES and half-time in another department. The administration of the program and courses taught in the Program cannot continue to be done as overloads.

Associated Departments: It is anticipated that within the next ten years, the Chemistry Department will seek to replace E.L. Poole, due to his retirement. It is extremely important that the position be filled by someone capable of teaching a course in the area of Environmental Chemistry (such as the current course CH 172).

In addition, the last remaining disciplinary gap in the Environmental Studies Program at Middlebury is in the field of Political Science. Currently, no one in the department is interested in advising students in this increasingly important field and there is no support for the idea that ES majors specializing in Political Science should take senior-level coursework. In a recent memo from a member of the department I was told that "we already have difficulty mounting a sufficient number of seminars for our own senior majors each year. We do not require a 400-level course for our concentrators; I see no reason why we should do so for ES majors." We feel that within the next several years Political Science ought to be given a staff increment, preferably someone with interests in national/international environmental policy formation, so that Middlebury students other that Political Science majors can take senior-level Political Science courses.

Leaves: We anticipate that the person filling the new ES tenure-track position will request a leave every 4-5 years with about 1/2 covered by outside funding.

2. Budget:

Paperwork: Currently, at the insistance of the Treasurer of the College, the Environmental Studies Program, does not have a budget number of its own. It has a budget (i.e., money); it just can't have its own 5-digit budget number. Previous to my Directorship, the ES money was part of the Biology budget. Clearly this was inappropriate from the standpoint of both Biology and ES. As a short-term solution, I agreed to have the ES money placed with the budget for the High Pond Nature Reserve. This is not a reasonable long-term solution. This means that no matter who the Director is and what department he or she is housed in, be it Philosophy, Economics, Geography, or Soc/Anthro, they will be handling the budget for a building and a parcel of land that the ES Program does not use. The Treasurer's decision is intolerable and unsupportable. In the past two years I have had two budget

numbers generated for my own personal use (grant budgets). Surely a separate number could be created to administer a old and active Program.

Money: Over the next several years, requests will be made to increase the ES budget to fund any new courses proposed and support senior research.

3. Library: Currently the College subscribes to only 2 or 3 of the technical journals in ES and as far as I can tell, all are considered to be part of Biology's portion of the journal budget. ES journals need to be separated financially from Biology journals, and the number of technical ES journals will need to expand.

INTEROFFICE MEMORANDUM

11 March 1988

To: Steve Trombulak
From: Meghan Kvasnak, Grants Office
Re: Environmental Studies Majors

Steve, attached is the query of environmental studies majors for the period 1967-1987. A total of 96 records was found. This is six students short of the number reported in the new Science Brochure --my mistake, I forgot to include geography. I have ordered a query of that group in the hope that we'll pick up the missing number there. It should be ready for you on Monday.

You'll notice that the columns following "undergrad major 2" provide a little information concerning occupations and post-graduate degrees (a translation of the "occ code" is also attached). We can expand on the information in these columns -- employer, position title, name of grad school -- let me know if that would be helpful.

If you notice any other errors in this query and would like to run a corrected version, I would be happy to do so. Please keep in mind that the records kept on alumni are incomplete. The office relies on alumni to volunteer the information --we're improving all the time. As you can see, not much is available on the classes prior to 1972. You might be able to obtain this information from Cindy Rigg, Director of Undergraduate Records. Cindy has the official lists detailing the majors of each graduating class.

MEMORANDUM

To: Environmental Studies faculty

From: Steve Trombulak

Subj: More information about other stuff

Date: 8 March 1988

A couple of new things to mention to you all.

First, I'd like for us all to have an opportunity to get together for lunch to discuss an itinerary for next fall's external review of the ES Program and to talk about how the requirements for the major should be changed to accommodate the new course (ES 401). Also, despite the addition of several new faculty members to the college and the program, we haven't met once as a group. It would be nice for all of us to meet the other people working to run this Program. I've reserved Gifford Lounge for Tuesday 22 March at 12:15. Unfortunately, the ES budget has nothing in it for catering so we'll have to brown bag it, but the Lounge is close to the Crest Room for those of us that pick up lunch here on campus. I hope you all can make it then.

Next, I am trying to get a handle on the ES journal situation. I would appreciate it if each of you could do two things for me. First, go through the list of journals that are currently being billed to **your department** that you feel should be more appropriately billed to **the Program**. I will then lobby to make that change. This should help all our departments by reducing, on paper at least, our department's journal expenditures. Second, give me the titles of any journals that relate to ES that we **currently don't get** but that you feel we ought to have. I can't lobby for an increase in the serial holdings if I don't know what we need. There is no deadline on this, although the sooner I do it, the sooner we can get the existing journals out of our departmental budgets.

Finally, I am extremely happy (seriously) to let you all know that Neal Leary has accepted an offer from the Economics Department to be the College's next environmental economist. Neal has undergraduate degrees in both ES and economics and is currently finishing his Ph.D. in Economics at the University of Washington. His dissertation work was not directly related to environmental economics but he has research interests and coursework experience in a variety of subjects related to resource economics. Richard Cornwall has kind enough to include me in the interview process, from which I was able to get a very good picture of the quality of the candidates considered. I personally feel that Neal was the best choice from the perspective of the Program, and because of his interest in a wide variety of subjects, including market economics in socialist countries that he will serve the core teaching and research activities of the department well. Richard also made it possible for me to present the Program's position and needs at the department meeting at which the decision was made, for which I am extremely grateful. Neal joins our faculty next September. EC 365 (Environmental Ec) will continue to be taught, and perhaps EC 394 (Natural Resource Management) as well. In addition, Neal will teach a new course (EC 465) on special topics in Environmental Economics. Despite the diversity of opinions held by members of the Economics Department about the relative merits of the field of environmental economics, they are all to be commended for adding to their faculty someone who will serve both their department and the college community so well.

February 25, 1988

Memo to: Stephen Trombulak

cc: Jean Blodgett

From: Robert Gleason RWG

Subject: New Course in the Environmental Studies Curriculum

I write to inform you that the Curriculum Committee has approved for inclusion in the 1988-89 and subsequent years curricula the course ES 401 Environmental Policy Formation. By sending a copy of this memo and a copy of the course description you provided the Committee, I hope to ensure that the course will be included in the next editions of the catalogues.

RG/jl

May 2, 1988

Memo to: John McCardell

cc: J. Margaret O'Brien
Stephen Trombulak

From: Robert Gleason RG.

Subject: Review of the Environmental Studies Program

As you may recall, I mentioned in a long-ago staff meeting that Steve wanted to have the Environmental Studies Program reviewed by a team of visitors from outside the institution. We got approval for the idea and commitment of modest financial support from the President. I write simply to remind you of this fact and to inform you that I have approved the inclusion of $750 in Steve's 1988-1989 budget to support the review.

RG/jl

MEMORANDUM

To: All Environmental Studies Faculty

From: Steve Trombulak

Subj: General news and views

Date: 31 March 1988

Two things:

First, Middlebury College is part of a recently funded consortium or 12 colleges and universities that aims to improve undergraduate education in the sciences. It is called the New England Consortium for Undergraduate Science Education (NECUSE) and is centered out of Harvard. Environmental Studies is one of the 8 areas that has been targeted for support. Right now it is pretty vague what that support is actually going to be. You will find attached to this note a copy of the description that has come down to me from upon high. Look it over and think about anything that you may be interested in doing that is (1) intercollegiate, (2) environmentally oriented, and (3) aimed at improving undergraduate education. You'll notice that the deadlines for some of the "opportunities" have already passed. Middlebury was a little slow getting out of the starting gate this year but there will be plenty of opportunities in the future. If you are interested in getting information about ES opportunities as part of the consortium, then please let me know! If I don't hear from you I will assume that you aren't interested and will not burden both you and me with unecessary paperwork.

The chain of contacts on this thing is as follows: Maggie O'Brien is Middlebury's representative to the consortium. As such she gets the information on everything and passes it on to anyone that might be interested. I am the College's contact person for Environmental Studies. I get information from Maggie and from Jim Hornig at Dartmouth, the consortium coordinator for Environmental Studies. I'll also pass to you on anything I hear on the chance that Maggie didn't hear about it first. In return, if you want to take advantage of any of the NECUSE money or have ideas about how it could be better spent to improve undergraduate education, pass it on to either me or Maggie. Sounds confusing? It is, but somehow or another we'll make sure that all of the information gets to you. I'm going to a meeting for NECUSE Environmental Studies early this month to discuss the kinds of things that ES Programs would like. One of the things that I know is high on everyones list is a electronic mail/bulletin board system for rapid posting of jobs, resources, ideas, and information. If you have any other ideas about what we could have to be better connected with the other schools and that would improve our Program, then let me know this week.

Also enclosed is one description of a summer internship for an environmentally oriented student. Please announce it to your students and have them come talk to me right away if they are interested.

Second, at the ES meeting two weeks ago it was suggested that ES 401 be used as the common senior experience for all ES majors. As such it could replace or supplement the 400-level course that is part of almost all of the foci. Please tell me what you feel about that and how you would like it to be handled in your focus. If I don't hear from you I will assume that you want me to make the decision for your focus.

MEMORANDUM

To: All ES majors
From: Steve Trombulak
Subj: Welcome back and program changes
Date: 9 September 1988

Welcome back for another year. After your all being away for the summer I thought I would send you a note to point out some of the changes that have been made in the Program and some changes that I am requesting from the Curriculum Committee but which are not yet official. You may want this information for making your final plans for Fall Term. Call me if you have any questions.

Changes from the 88-89 catalog due to course deletions or number changes:

1) Change MA 213 to CX 213.
2) Change GG 230 to GG 260 and GG 354 to 254.
3) Delete GL 252 from the SS/H track.
4) Delete CH 172 as a cognate option for SS/H track.
5) Delete EC 394 from core options of the SS/H track and the cognate options of the NH track.
6) Allow NE 252 as a course for the Biology focus

Proposed changes in the ES major; these have not yet been approved by the College but I anticipate that they will. I'll let you know when it is official:

1) Add PS 103 to the list of core options for SS/H track and cognate options for NH track.
2) Add GG 210 to the list of core options for SS/H track and cognate options for NH track.
3) Add NE 252 to the cognates for SS/H track.
4) Drop EC 150 from Economics focus and add EC 465 (Topics in Environmental Economics).
5) Add GL 290 (Energy Fuels and Development) to the cognate options for SS/H track.
7) Add GG 251 (Geomorphic Processes) and GG 255 (Surface Water Resources and Development) to the cognate options for NH track.

To: All ES faculty
From: Steve Trombulak Steve Trombl-k
Date: 21 September 1990
Subject: ES Working Group for 1990-91

Now that the semester is marginally under control I would like to begin our year's efforts to improve the ES program. Before I lay out my agenda for the year, I'd like to welcome to the Program three new faculty members. Chris Klyza joins the Political Science Department as an Assistant Professor and a natural resource policy specialist. This year he is teaching PS 211 (Environmental and Natural Resources Policy), PS 421 (Perspectives on the Environmental Movement), and PS 310 (American Public Policy). He also intends to teach a Winter Term course on environmental movements and activist philosophies. Tom Carr joins the Economics Department as a Visiting Assistant Professor, replacing Neil Leary for the year. Tom will teach EC 465 (Special Topics in Environmental Economics) and EC 365 (Environmental Economics), as well as a Winter Term course on Energy Economics. His specific area of scholarly interest is the economics of nonrenewable energy. Barbara Rusmore joins Environmental Studies as a Visiting Instructor, in what I believe is the first ever ES appointment at Middlebury, and will teach ES 401 this Fall and Winter Term. Welcome to all of you, and believe me when I say how glad we are that you're here.

Now to the dirty work. As you may be aware, there is a tremendous increase in interest in environmental education on campus among the students, faculty, and administration. This is due, I think, to several things, including Earth Day 1990, the recent Spirit and Nature Conference, and the general flavor of the times. As the only formal structure for environmental education on campus, much of this attention is focusing on us. For example, we now have 42 majors in the junior and senior classes combined (as of the start of the semester), and 60 freshmen attended the introduction to the ES major during Freshman Orientation Week. If this interest among the students continues for only a few more years, it is entirely likely that we will be servicing over 100 students among the four classes.

As a Program, however, we are not prepared to deal with this increased attention. With the exception of ES 401, our entire curriculum is dependent on the courses offered by other departments. This was an acceptable situation for both the departments and the Program when there were only 20 ES majors in all, but we are now putting such an enrollment burden on departments that they are rethinking their involvement in the Program and, as a result, our requirements are unstable and subject to constant and unpredictable changes.

Two recent examples: Geography has asked us to remove GG 260 (Social Aspects of Environmental Issues) as a core requirement for the major, and Geology has asked us to allow GL 170 as an alternative option for GL 112 as a core requirement.

So once again, the requirements for the ES major change for the new academic year, and once again, the requirements do not coincide with what is in the catalog, radically increasing the advising load.

Along the same vein, we are finding it increasingly difficult to staff ES 401 among ourselves. At last spring's ES meeting Neil organized us to request to TRC a temporary faculty position to teach ES 401 this year. This request resulted in Barbara Rusmore's joining us as the Instructor of ES 401 for this Fall and Winter Term. Our agreement with TRC does not extend beyond this year, however, and we need to discuss the staffing of this course again to achieve what I hope will be a more permanent solution.

These issues, the stability of the core courses, our susceptibility to changes in departments, and the staffing of ES 401, are all related. I see our major agenda for this year being to come up with a plan to offer our own core sequence that (1) is not at the mercy of other departments, (2) is not offered at the expense of our collective mental and physical health, and (3) has a chance of remaining unchanged for at least 2 years. I have spoken with folks in the administration about our needs and they seem interested in working with us to achieve the stability we need.

I anticipate that other items will creep into our agenda for the year, but I see these as secondary to the major issue of curriculum stability.

As I did 2 years ago, I would like to form a Working Group in order to do the work necessary to achieve our goals. I expect the Group will meet at least once a month. As before, ANYONE interested in playing an intimate role in shaping environmental education and the Program at Midd is welcome to participate. My only hope is that there will be representatives from each of the divisions (Humanities, Social Sciences, and Natural Sciences) that participate in the Program.

Don't fear that if you can't fit participation in the Working Group into your schedule that you'll be cut out of the Program or information about anything we want to propose. All proposed changes in the Program will be communicated to and approved by all faculty in the Program.

(cut here and return to Steve Trombulak, Biology, Science Center)

Name: _____

Yes, I want to be part of this year's Working Group. Count me in and let's get going!

Days of the week when you can make a 12:15 meeting this fall

M T W Th F (Circle all that are possible)

MEMO

To: John McCardell, for the Teaching Resources Committee
From: Steve Trombulak, Director of Environmental Studies
Date: 8 January 1991

Subj: Request to the Teaching Resources Committee for faculty support for the Program in Environmental Studies

Introduction. The Program in Environmental Studies at Middlebury College, founded in 1965, is arguably the oldest such program in the United States. For all of its 26 year history, however, it has operated on the energy and enthusiasm of faculty who were willing to take on the extra load of developing curricula, advising students, and teaching courses. Additionally, the curriculum of the Program has by-and-large been supported by the goodwill of related departments. Although this approach may be successful over short periods of time, it is largely dependent on the willingness and abilities of both the faculty and the departments to accommodate the needs of the Program and its students.

In recent years, the Program has succeeded in attracting a large number of students to the major, straining the abilities of the related departments to offer the courses necessary to provide a curriculum of sufficient quality and stability. The root of the problem is that there are no faculty who can take on, as part of their long-term contribution to the College, the task of offering the courses necessary to serve this group of students.

Therefore, the faculty of the ES Program request that the TRC provide permanent faculty positions in the Program.

What are we asking for? We ask that the TRC change the conditions of appointment for two people currently on the faculty of the College and participating in the ES Program, John Elder and Steve Trombulak. We ask that Elder's position be changed from Professor of English to Professor of English and Environmental Studies (with 50% appointment in each), and that Trombulak's position be changed from Associate Professor of Biology to Associate Professor of Biology and Environmental Studies (with 50% appointment to each).

The specific implications of these changes for the Departments of English and Biology will be discussed in requests that they are submitting separately. The purpose of this document is to justify the need for these appointments and to explain how these appointments would be used to support the ES Program.

What is the current status of support for the ES Program? The ES Program has never had any tenure-track positions directly associated with it. We currently have one temporary, part-time instructor (Ms. Barbara Rusmore; Fall and Winter 1990-91) to teach the senior-level course on policy formation. This position, which represents a salary of $9,000, disappears at the end Winter Term. Also, one tenure-track line in the Department of Political Science, presently filled by Chris Klyza, has associated with it the stipulation that it will provide two courses to the ES Program each year.

The Program does not have any other staff support. All clerical work has been done by the Director out of his office. The budget for the ES Program is included within the budget for the Vermont Wild Lands Foundation, the majority of which goes to maintain the High Pond Field Station. The portion of the budget associated with the ES Program has never exceeded $500.

Why is ES worth supporting? In the past 5 years, the Program has grown both in quality and quantity. This has happened in parallel with, and in part as a consequence of, an increased importance of environmental education at the college level throughout the U.S.

Students: The number of students majoring in Environmental Studies at Middlebury College has increased over 400% since 1985-86, with increasing numbers in each class (Figure 1). Indications are that the trend will remain the same for the class of 1994. Sixty first-year students attended the Introduction to the ES Major session during Freshman Orientation Week in September 1990; this compares to the 10 who attended in 1987. As of December 1990, we had 46 declared majors in the junior and senior classes, placing us in the top 25% of all majors on campus (10th of 42). There is also an increased interest in ES among students entering Middlebury College. In 1987, only 3 entering students stated in the application material that ES was their first choice for a major, compared to 27 students making this statement in 1990.

Faculty: By the early 1980's, only 5 faculty identified themselves as being associated with the ES Program, all of whom were due to retire in the near future. In the previous 20 years the identity of the faculty associated with the Program had not changed, and little attempt had been made to attract new faculty, especially those from the Humanities Division. Since 1985, 13 tenure-track faculty have come to identify themselves with the Program. These include senior faculty who were already at Middlebury College and junior faculty hired since 1985, coming from 8 departments and all divisions except the Foreign Languages (Table 1).

Educational mission: By 1985, the primary focus of the ES Program was environmental biology. The only senior-level course required for the major was BI 411 (Topics in Ecology), and no courses from the Humanities Division were part of the major. In 1986, however, we adopted the following educational mission:

> To provide an interdisciplinary major that addresses the relationships between humans and the environment. This will involve (1) significant exposure to the natural sciences,

social sciences, and the humanities to provide breadth across the curriculum, and (2) extensive coursework in one or two focussed areas to provide depth of understanding.

We feel we have been quite successful in meeting these goals. All ES majors now graduate with coursework in biology, geology, writing and literature, and economics. Additionally, the number of students focussing in areas outside of the natural sciences has increased steadily. Currently, there are as many students focussing in areas in the social sciences (Economics, Political Science, Geography, and Sociology/Anthropology) and humanities (Writing and Literature, and Philosophy) as there are in the natural sciences (Biology and Geology).

How does this request support ES? The two 50% positions will be used to teach (1) a set of required core courses, (2) the senior-level course, and (3) electives to support the writing and literature focus. This will result in new courses and a change in the requirements for the ES major; our request for these additions and changes will shortly be considered by the Curriculum Committee. Although these courses are primarily intended to benefit ES majors, we expect that all of the courses will be open to the entire student body, and therefore they will make a general contribution to the curriculum of the College, particularly with regard to the Distribution Requirement.

Because the request for these positions are being made with respect to the overall needs of the Program, I will first briefly describe what the overall Program design is, and then list more specifically the contributions of both Elder and Trombulak.

The major currently requires students to take 5 required courses, 4 electives, and a set of 5 - 7 courses in an area of focus (Table 2). This arrangement has been problematical over the past few years, especially with the tremendous increase in the number of majors.

First, of the five required courses, four are offered by other departments, causing these departments problems with staffing and space. As a case in point, there were six required courses this past summer when Geography announced that we could not longer require GG 260 (Social Aspects of Environmental Issues) because the instructor did not like having classes that big.

Problems also exist with some of the remaining required courses. Geology cannot offer enough places in GL 112 (Environmental Geology) because of a limit on laboratory space, and therefore they requested that we accept GL 170 (Global Tectonics) as an alternative, thereby defeating our goal of having a common educational core for the ES majors. Also, English is not committed to offering EL/AL 113 (Visions of Nature) as an integral part of its major. Therefore, it was not taught in Spring 1990 when Elder went on sabbatical leave.

Second, the single course offered by the ES Program, ES 401 (Environmental Policy Formation), has been a successful addition to our curriculum and has provided a unifying senior experience for our majors, yet has been a challenge to offer each year. In 1988, it was taught by Trombulak as a course overload (i.e., he taught it in addition to his full load in Biology). In 1989, the course was going to be bracketed until a physical disability forced Jack Schmidt to cancel a field Geology course, allowing him to teach ES 401. Finally, the Program had planned to have the course taught in 1990 by Burke Rochford, until he was appointed Chair of Sociology/Anthropology. This forced the Program to make a last minute request to TRC for a temporary instructor to teach this course during this past fall.

With this requested change in the faculty appointments to ES, we expect to be able to alleviate these problems. We would change the required course list so that BI 190 (General Ecology), GL 112 (Environmental Geology) or GL 170 (Global Tectonics), EC 365 (Environmental Economics), and EL/AL 113 (Visions of Nature) are replaced by 3 courses, one that represents the strengths of each of the three participating divisions:

PS 2ll (Environmental and Natural Resource Policy). This course was first taught this year by Chris Klyza in Political Science. We anticipate that this course will remain stable through the foreseeable future because of the relationship between Political Science and ES concerning Chris' appointment. This would be taught each Fall. Enrollment this past semester was about 40, with a waiting list of over 30 students.

ES 212 (Natural Science and the Environment). This would be a new course taught each Spring by Steve Trombulak.

ES 213 (Visions of Nature). John Elder would teach this modification of his former EL/AL 113.

This would also solve the problems of staffing the senior-level course:

ES 401 (Environmental Policy Formation). This course would continue to be taught each Fall. Initially, the course will be taught by Steve Trombulak. The potential exists, however, for it to be taught by some combination of Trombulak, Elder, and Klyza depending on sabbatical leaves and the status of Klyza's other environmentally related course (currently PS 421).

Why is this an improvement over the existing situation? This request benefits the ES Program in several ways. First and second, as were emphasized above, it allows us to offer a stable set of core courses that neither parasitizes or depends on other departments, and it allows us to offer the senior-level course without seeking stop-gap solutions each year. Third, it makes it possible to offer these courses without requiring that the participating faculty regularly teach extra courses. Fourth, it provides to

the Program two people who are already on the faculty of Middlebury College, who are already tenured, and who have already demonstrated an ability and desire to teach in, advise students in, and administrate the Program.

It should be noted that these requests correspond to the recommendations of the external committee that reviewed the ES Program in 1988. Among their recommendations and conclusions were:

> "Find a way to offer several dedicated environmental studies courses. The introductory level course(s) should get first priority, . . ."
>
> "It is very important that identifiable faculty resources be committed to ES. It would be highly desirable to establish one or more new faculty positions primarily focussed in ES."
>
> "Unless Middlebury moves to take the next essential steps, you run the risk of falling behind the competition of comparable first class institutions."

How would this change be implemented? Both the English Department and the Biology Department will be submitting separate proposals to deal with the implications of this change with respect to their curricula. It may help the TRC, however, to see how the teaching loads of Elder and Trombulak would be distributed.

John Elder: Beginning in 1991-1992

Fall: Freshman Seminar
EL seminar to support English Department or
EL 265 (Nature Writer's Workshop) (alternating)

Winter: Course of choice

Spring: ES 213 (Visions of Nature; formerly EL/AL 113)
EL 203 (Interpretation of Literature)

Steve Trombulak: Beginning in 1991-1992

Fall: Biology 302 (Vertebrate Natural History; with lab)
ES 401 (Environmental Policy Formation)

Winter: Course of choice

Spring: Biology 202 (Vertebrate Biology; with lab)
ES 212 (Natural Science and the Environment)

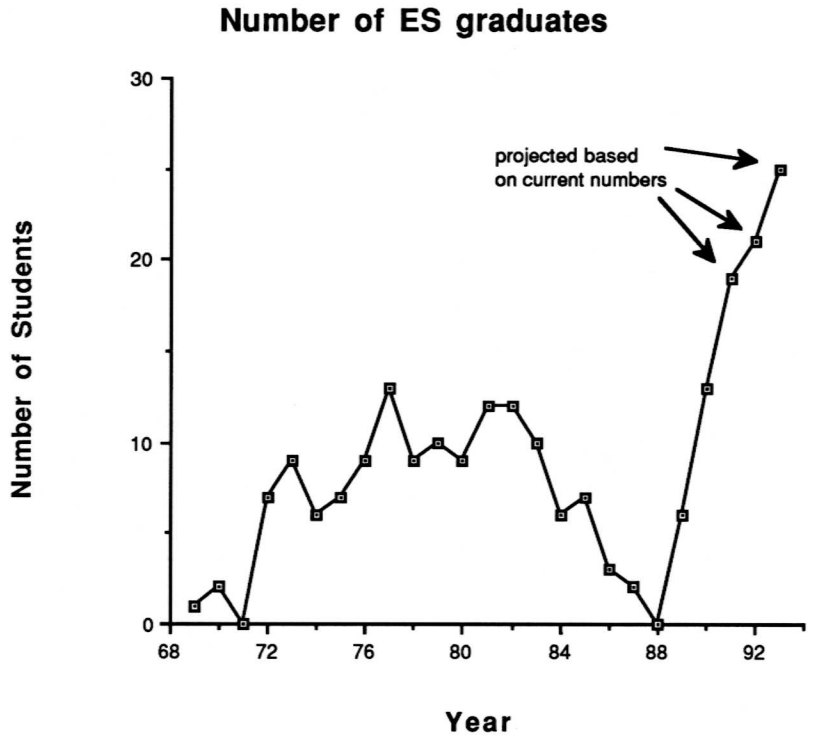


Table 1. Faculty associated with the Environmental Studies Program

David Andrews (Sociology/Anthropology)
John Elder (English)
Victor Nuovo (Philosophy)
Robert Churchill (Geography)
Raymond Coish (Geology)
Stephen Trombulak (Biology)
Richard Arthur (Philosophy)
Lucy Harding (Geology)
Chris Klyza (Political Science)
Neil Leary (Economics)
Burke Rochford (Sociology/Anthropology)
Jack Schmidt (Geology and Geography)
Sallie Sheldon (Biology)

Table 2. The requirements for a major in Environmental Studies

Core courses: Each of the following courses is required.

BI 190 (General Ecology)
EL/AL 113 (Visions of Nature)
GL 112 (Environmental Geology) **or** GL 170 (Global Tectonics)
EC 365 (Environmental Economics)
ES 401 (Environmental Policy Formation)

Cognate courses: Any four of the following courses; at least three of them must be from divisions other than that of the focus, and at least three must be above the 100 level.

BI 302 (Vertebrate Natural History); BI 390 (Advanced Ecology)
CH 103 (Fundamentals of Chemistry I)
EC 465 (Special Topics in Environmental Economics)
GG 210 (Geography of Development) **or** 211 (Economic Geography); 250 (Physical Earth Processes) **or** 254 (Weather and Climate); 255 (Surface Water Resources and Development); GG 260 (Social Aspects of Environmental Issues); GG 320 (Geographical Information Systems)
MA 106 (Introduction to Statistical Science) **or** EC 210 (Economic Statistics) **or** GG 300 (Spatial Statistics)
NE 252 (Biogeography)
PA 207 (Ethics and the Environment), 214 (Science and Society), 216 (Philosophy of Science)
PS 103 (Comparative Politics) **or** 104 (American Political Processes) **or** 208 (U.S. Congress); PS 211 (Environmental and Natural Resource Policy); PS 421 (Perspectives on the Environmental Movement)
RE 303 (Religion, Ethics, and the Environment)
SA 307 (Social Movement and Collective Action)
Any Winter Term course listed as Environmental Studies

Foci: Complete all the requirements for one of the following foci. Courses taken as part of the core sequence and as cognates may not normally be used as part of the focus.

Biology: 185, 195, 4 additional courses at the 200-300 level
Chemistry: 4 courses at the 200-300 level, 2 courses at the 400 level
Economics: 210, 355, 465, 2 additional courses above the 100 level, MA 112
Geography: 100, 4 additional courses at the 200-300 level, 1 course at the 400 level
Geology: 3 courses at the 200-300 level, 1 course at the 400 level, 2 units of 700
Literature and Writing: EL 107 **or** 160 **or** 170, EL 260, EL 213, AL 202, CS 225

Philosophy: 180, 4 additional courses at the 200-300 level, 1 course at the 400 level
Political Science: 211, 421, 1 course at the 100 level, and 3 courses at the 200-300 level
Sociology/Anthropology: 103, 190, 301 **or** 302, 2 Area Studies courses

MIDDLEBURY COLLEGE

Department of Biology
Middlebury, Vermont 05753

To: All ES Faculty
From: Steve Trombulak Steve
Subj: News

The response to my request for members of the Program to join this year's Working Group was quite good. As I hoped, we have representation from all three divisions: John Elder (Humanities), Chris Klyza and David Andrews (Social Sciences), and Jack Schmidt and me (Natural Sciences). It is my plan that this group will meet a least once a month to deal with the issues facing the Program. I expect us to tackle first the problem of curriculum instability, but other issues will be added to the year's agenda. If you have anything that you feel we should discuss, please convey them either to me or to any member of the Working Group.

I want to let you all know now about an issue that will come up this spring. My term as Director of the Program expires this year. I have told Old Chapel of my intention to not serve another term. My reasons for this all relate to my concern for the well-being of the Program. First, for 25 of the Program's 26 years of existence, the Director has been a member of the Biology Department. One of my main goals when I took on the Directorship 5 years ago was to expand our focus beyond just environmental science and to more strongly embrace both the social sciences and the humanities. I feel that I have done that with respect to the faculty who participate in the program and the foci of the students, but I think the perception in the college community is still that the ES Program is a branch of the Biology Department. Second, I don't think that it is wise for the Program to become too heavily identified with a single personality. This seemed to be the case during the Program's first 20 years, and perhaps set the stage for the poor opinion some folks in the College had about the Program. I would therefore like to set an example, which I hope will become a tradition, of the Directorship being a rotating position. Third, I have been Director for 5 of my 6 years on the faculty here. My research is suffering and I need a break. This is not to say that I won't be willing to be Director again sometime in the future; just not now.

As you all know, Chairs and Directors are appointed by the President and serve at his discretion. Officially, it is not our choice. However, folks in Old Chapel tell me that come spring when they take up the matter, they will be very interested in all of our opinions, so I am confident that the next Director will be someone that we are all happy with. If any of you are interested in perhaps being the Director, and would like to know more about what I think the responsibilities and time commitments are, please feel free to give me a call. I promise that your expression of interest will remain confidential.

19 November 1990

Steve T.

To Various Colleagues:

I would like to comment on a memo that I received (along with several other colleagues) entitled "thoughts on the future of the Environmental Studies program," written by Jack Schmidt, since geography was relatively prominent in its discussion. Allow me first to say that I see the kinds of questions being asked about how we go about doing what we do (educating) as important, and, in the long-term, healthy for the institution and for our students. Having said that, I would like to address two issues: 1) the issue of what geography "is," and how it relates to Jack's memo; and 2) defining "ES," whatever that may entail and identifying its proper administrative structure. I should point out that Jack and I did not discuss what he has written, although I am sure we soon will.

I. *The issue of "geography" and how it relates to environmental studies:* I think Jack is somewhat correct in claiming that "geography [may have] dropped the ball" when it did not concentrate its attention more strongly to environmental studies. However, the message one may get from his memo may be that the **human-environmental interaction** emphasis in geography *was* and *is* the only approach to geography and therefore defines the field. In fact, this important theme is one of only 5 offered by geographers at about the time the "ball was dropped," to use Jack's words. Many geographers concentrate on *human-environmental interaction* (which may be defined as the study of how humans interact with and alter their environments, how the environment influences human action, plus the implications of these relationships), which is what Jack, Bob Churchill, and Bill Howland do, all as physical scientists. Gail Fondahl and Timi Mayer also study *human-environmental interaction*, but as social scientists and therefore emphasize different aspects of that interaction. Richard Mahon and I follow more closely a second concern of the discipline, often referred to as **areal differentiation**, which seeks to understand the consequences of different and changing locational structures of given phenomena. More precisely, this emphasis seeks to explain (and predict) the spatial implications of specific properties within theoretical and comparative contexts. Drawing from my own case as an example, Sovietologists across several disciplines study economic development in the USSR, but because I am a geographer, I study its *spatial* implications -- implications that include ethnic relations, migration patterns, and political cohesion among disparate peoples and regions. The Soviet Union, then, represents a laboratory in which to test "accepted" theories, such as demographic transition, the multitude of theories on the rise of ethno-nationalism, and modernization theory, and is not treated simply as an object about which one collects as many facts as possible. Studying a region in such great depth represents a third approach to our field, known as **regionalism**, which had its heyday in the 1940s and 1950s, was the approach most followed by former Middlebury geographers Rowland Illick and Vince Malmstrom, and which is the view most still hold today about the field and what we do. The lack of knowledge of what geographers do, in my opinion, goes a long way in complicating the problems Jack addresses in his memo. Because geography is not usually taught beyond

(over)

the 7th grade **in the United States,** few are aware that there is more to the field than teaching the location of capital cities and describing mountain ranges and principle exports of every country. Five of the 7 geographers on campus do study and teach some aspect of **human-environmental interaction** and therefore do represent a rich core for environmental education; however, for whatever "ES" is here at Middlebury, not all geographers study the environment and geography is not fully synonymous with ES.

II. *Defining "ES:"* It seems to me that even if one does not fully agree with Jack's placing "ES" (whatever that means today) in a department in general and in geography particularly, I think he raises fundamental questions about environmental education and the ways in which Middlebury is trying to provide that education, both of which perhaps need to be addressed. I know that ES has worked very hard trying to build a credible and strong ES major on campus. However, some of Jack's questions, if discussed, might help strengthen environmental education at the College. For example, due to structural reasons and others that are not fully clear to me, there is less of a contribution from our department (Geography) to the College's ES program than one would expect and which would seem beneficial to the program. As Bob Churchill points out, the health/viability of majors like ES currently depends on the willingness of departments to cooperate in dedicating resources (time and faculty are resources) to the major. The level of cooperation from departments needn't only be substantial, but it must also be consistent given our present administrative structure, for if faculty opt out of contributing to these external majors (external from their own departments), those majors are faced with continual curricular and faculty changes, neither of which helps environmental education or students. As Bob points out, there is presently a **disincentive** to commit oneself to these multi-disciplinary majors for obvious reasons, all of which need to be discussed. There may be goodwill on the part of several faculty toward a non-departmental major, but the amount of time that must be given to our departmental majors may preclude contributing to the non-departmental major, like ES. What results is an underutilization of teaching resources for a given program or major that needs to be better understood and perhaps rectified. It is in perhaps this context where Schmidt's memo is most important. If "ES" is seen to be something we want to maintain on a significant level, might we not be better off with an ES **department**, through which more cohesion and a guaranteed commitment to students (and majors) could come from the College? It seems to me that we need to start by establishing goals for our curriculum at large and for our individual majors (including multi-disciplinary majors) in particular before knowing where what ought to go, etc.

I find the Schmidt memo provocative because in my opinion it begs the question of what is it we are trying to do in educating students at Middlebury? What is ES? What is it that our interdisciplinary *majors* do? These are the kinds of questions I hope a semester or year of college-wide discussion can resolve and I think the Schmidt memo should serve to provoke.

Dan L.

MEMORANDUM

To: Curriculum Committee
From: Steve Trombulak, for the Environmental Studies Working Group (John Elder, Rick Arthur, and Jack Schmidt)
Subj: Response to your memo of 13 April concerning changes in the ES major

We have discussed your concerns at length and have talked with Bob Gleason about the Department of Chemistry's attitude toward the ES Program. We remain convinced that our original proposal is the best that is currently possible and that chemistry should not be part of the required core curriculum. Our reasons are best stated as direct responses to your questions.

1. Can the lack of chemistry in the core be rectified? Certainly. We could add a chemistry course to the core list. The most likely course for inclusion would be CH 103 (Principles of Chemistry). This would have the effect of either (a) making the ES major have seven required core courses, or (b) forcing us to drop one of the other core courses. A seven course core seems excessive and is therefore not an acceptable option. We also do not feel that CH 103 (Principles of Chemistry) has any logical primacy as a required course over the six we have proposed, for the following reasons. First, all the required core courses are specifically targeted at environmental education; CH 103 is not. Second, ours is an Environmental STUDIES Program, not an Environmental SCIENCE Program. With all due respect to many deeply held misconceptions, not every student becoming trained in environmental studies absolutely must have a course in introductory chemistry. We fully anticipate that those students focussing in environmental biology and geology would be advised to take not only chemistry but calculus, physics, and statistics as well. But requiring students focussing in environmental economics, sociology, philosophy, literature, and geography to take introductory chemistry seems merely punitive.

Can we encourage the Chemistry Department to offer a course in Environmental Chemistry? Yes, we can. When Lewie Pool retired I encouraged Chemistry to hire someone who could continue to teach CH 172 (Environmental Chemistry). The Chemistry Department chose not to do this and therefore CH 172 is no longer in the catalog. If Chemistry were to offer this course again on a yearly basis I expect that the ES Working Group would once again consider the issue of whether to require chemistry as part of the ES core.

2. Is the overall major sufficiently rigorous to allow students of any tract (*sic*; our proposal specifically removes the tracts from the major) admission to a good graduate program? Yes. You must understand that there are very few graduate programs in Environmental Studies. Most graduate opportunities are in specific areas. For example, in my graduate opportunity file I have information on programs in environmental biology, environmental policy, environmental law, urban planning, forest resource management, resource economics and policy, resource ecology, and water and air resources. The bulk of the students' preparation for these programs must come in the foci. Interestingly, many of the natural science-oriented graduate programs (such as the forest resource management and resource ecology programs at Duke University) do not have any chemistry courses as prerequisites.

As an aside, and speaking solely for myself and not the Working Group, I am surprised that we must address this question. When I came to Middlebury College I was (and continue to be) appalled that a student can graduate with a Biology degree without having had any calculus, any physics, any organic chemistry, any statistics, and only one semester of inorganic chemistry. No reputable graduate program anywhere would accept such a student. When I asked why this was so I was told that (a) we were a liberal arts school that emphasized a broad curriculum at the expense of a required depth in the sciences, and (b) we had to encourage students to take these cognate courses through advising.

What about the policy vs. science issue? What is the issue? Students interested in policy will go to graduate programs specifically in the area of policy and will be well prepared for it by virtue of their focus in either economics or political science (to be added to the major in 1990). Students interested in science will go to graduate programs specifically in the area of science and will be well prepared for it by virtue of their focus in either biology, chemistry, or geology.

Do graduate programs take students from programs that are not scientifically based? Yes, especially if they are in the area of environmental policy, environmental law, environmental economics, urban planning, or schools of government, management, or architecture.

3. Review of recommendation of the Visiting Committee. We strongly encourage you to do so because all of our proposed changes follow from recommendations made by that committee. We specifically found guidance from passages on Page 2, point 2 ("Students ... expressed reservations regarding the overly complicated structure of the various ways of majoring in Environmental Studies") and on Page 2, point 3 ("... it [is] time for the program to move towards greater involvement of the social sciences and the humanities."), ("... the multidisciplinary point of view certainly applies to Middlebury and curricular development should be viewed in that light."), and ("... the scientific basis of environmental studies cannot be taught as an end in itself.").

If the Curriculum Committee would like further clarification of these points I think the best approach would be for me to talk with you directly.

Environmental Studies Program
Annual Report 1989-90

Curriculum Changes

Field Program in Zimbabwe, Africa

During the past year, Middlebury College joined a consortium of liberal arts schools and The School For Field Studies to offer a field semester of coordinated study on sustainable development and environmental protection in Zimbabwe, Africa. The Curriculum Committee approved the program for four Middlebury College course credits, to be counted as cognate courses in a student's Environmental Studies major. The program was to have begun this past spring, but last minute difficulties in negotiations with the government of Zimbabwe caused the first semester of the program to be cancelled. The consortium is continuing efforts to reestablish the program in Zimbabwe, but is also exploring alternative countries to host the program. It is hoped that a program of field study in environmental studies will be in operation in the near future. Steve Trombulak represents Middlebury College in the consortium.

Political Science Focus

Political Science is being added to the list of foci from which students majoring in Environmental Studies may choose. The focus will include two new political science courses, an introductory course on environmental and natural resources policy and an upper level seminar course on related topics, plus four other existing political science courses.

Core ES Program

All Environmental Studies majors are required to take a core of six courses. Included in the list of core courses is GG 260, Social Aspects of Environmental Issues. Timi Mayer, the instructor for this course, has requested that the course be removed from the list of required core Environmental Studies courses. ES faculty will draft a proposal for a new core with a replacement course for GG 260 and submit the proposal to the Curriculum Committee in the fall.

Faculty and Staff Information

General Background

There are no faculty appointments in Environmental Studies and no supporting staff for the program. The ES faculty is comprised of faculty with appointments in other departments who voluntarily participate in the program and who teach courses that contribute to the program. Thirteen members of the faculty from seven departments are listed in the catalogue as participating in the ES program.

1989-90 Leaves

During the past year, five of the participating faculty were on leave from the college and will be returning in the fall: Rick Arthur, John Elder, Timi Mayer, Sallie Sheldon, and Steve Trombulak. Neil Leary served as acting director of the program in Steve's absence. Steve Trombulak will be resuming his duties as director in the fall.

New ParticipatingFaculty

Chris Klyza has been hired as an assistant professor in the Political Science Department and will be participating in the ES program. The hiring of Chris has enabled us to add Political Science to the list of ES foci. Chris will be teaching two political science courses on environmental and natural resources policy. The lack of a political science focus in the Environmental Studies Program has been a serious omission in our course offerings. We are very pleased that Chris will be joining our faculty in the fall to fill this need.

Tom Carr has been hired as a one year replacement for Neil Leary in the Economics Department and will be teaching the two environmental economics courses. Neil will be on leave for the year at the US Environmental Protection Agency.

Staffing of ES 401

At the end of Spring Term, the Teaching Resources Committee approved the hiring of an instructor to teach ES 401, Environmental Policy Formation. In the past, this course has been taught as an overload by ES faculty. With the growth in the program, it was decided that this method of staffing the course was no longer sustainable. The hiring of an instructor for ES 401 is a temporary solution to the problem. Finding a longer term solution will receive high priority from ES faculty in the fall. Two potential candidates have been identified for the position and we expect to have the position filled shortly.

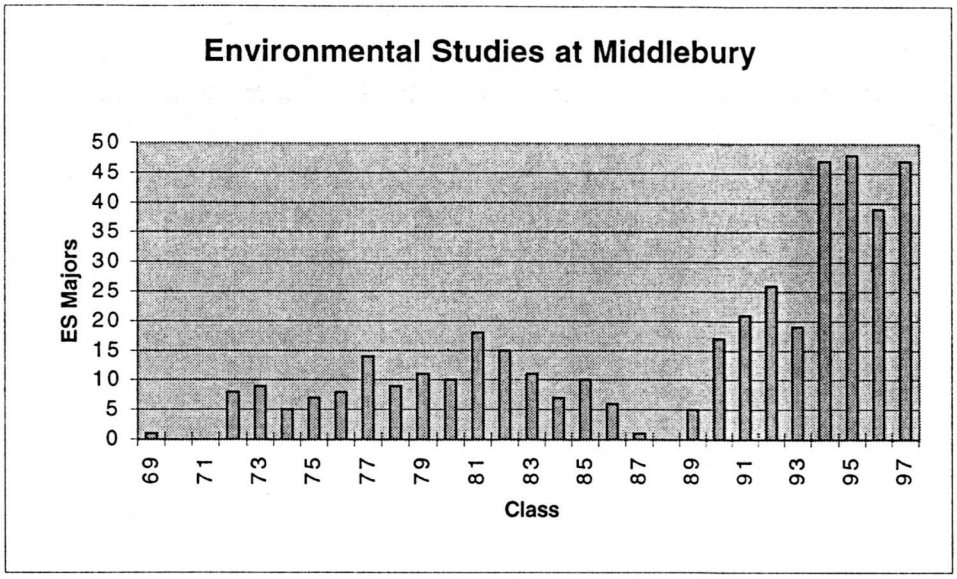
Other Changes

Timi Mayer and Bob Churchill have requested that their names be removed from the list of participating faculty.

Student Information

The Environmental Studies Program has experienced tremendous growth over the past year. In Spring 1989, the graduating class included only four Environmental Studies majors. This spring, thirteen seniors were graduated with Environmental Studies majors. In the fall, 37 declared ES majors will be returning to campus. Enrollments in courses related to environmental topics have been growing. We are pleased with the growth of interest in environmental studies, but the rapid growth of the program has placed significant stress on the resources of the ES program. In the case of ES 401, the growth of the program has forced us to rethink how this course is to be staffed in the future. Growing enrollments also contributed to Timi Mayer's decision to have GG 260 removed from the list of core ES courses. It is time to review the growth in the program and plan how to better accomodate and serve the growing student interest in this field.

Academics - cont.:



RECOMMENDATIONS:

1. Central departmental offices. Farrell House does not offer an appropriate space for an interdisciplinary department to come together. There are only four offices, no library, no seminar rooms and no central meeting space. A strong central department presence will be necessary to allow the program to expand, grow and provide opportunities for its majors.

2. Develop internship and career services. Middlebury College makes many opportunities available to students, as evidenced by our many off-campus study opportunities for E.S. majors. However, we need to work to expand the potential for internships in environmental fields and options for employment after graduation.

3. Establish opportunities for non-majors. There currently is no minor option for a person who wishes to major in another subject. As Environmental Studies is a field interesting to many, we should consider whether or not to make this option available. If the demands on faculty are too great, but we deem it worthy, perhaps this indicates a need for more faculty.

4. Supplement faculty as necessary. While the faculty to major ratio is quite good, it does not demonstrate the distribution of students among advisors. Some faculty in the department act as advisors to many more students than the average, while others advise less E.S. majors, but many other students from another department. Some foci that have a large interest base at Middlebury, such as Sustainable Agriculture and Environmental Education, are not offered on the basis that we do not have the courses nor faculty to support them. We should consider these needs and make an appropriate assessment of whether to expand our faculty.

SOURCES:
Toni Best - E.S. Administrative Assistant
Nan Jenks-Jay - Associate Director of Environmental Affairs and Planning
Valerie Szycmowitz - Career Services
Stacey Woodie - Office of Off-Campus Study

COMPILED BY:
Jennifer Hazen

ANNUAL REPORT
Program in Environmental Studies
1985-1986

CURRICULUM DEVELOPMENT

This year saw the implementation of an entirely new curriculum. The core of this curriculum places greater emphasis both on building a sound substantive foundation in the physical and life sciences and on acquiring competency with the skills and techniques required in theoretical and applied research. Both to facilitate this more rigorous core and as a reflection of changes in faculty participants, individual tracks and senior theses are now self selecting rather than required components of the curriculum.

On the basis of this year's experience, the basic structure of the curriculum appears sound and rationale, but some changes are anticipated as the program continues to develop. The required ecology courses will be restructured next year, for example, and program participants have discussed the possibility of introducing an informal seminar that would focus on exchange of student and faculty work and presentations by guest lecturers. Such a seminar, in which all majors would be expected to participate regularly, not only would provide a forum, for discussion of related ideas and interests but could contribute significantly to the identity of the program.

ENROLLMENT TRENDS

Prior to registration for the 1986 fall term, three freshmen declared environmental studies majors. Interest in the program, however, is considerably greater than indicated by number of new majors. Freshman orientation meetings, for example, were well attended, and several new students also attended All College Meeting Nights. Based on this level of interest, the number of majors can be expected to increase if the program can successfully establish a clear identity.

ACTIVITIES

Toward building such an identity, a social meeting of interested students and faculty was held during the fall term. During the spring term, the program cosponsored a campus visit Ted Shabad, who lectured on Soviet resource development in context of environmental constraints.

STUDENTS

The 1986 graduating class included five environmental studies majors. Daniel Kaveney graduated cum laude, with departmental honors. Sarah Lewis was elected to Phi Beta Kappa and graduated summa cum laude and with departmental honors. Sarah will begin study of environmental law at Syracuse Law School in the fall.

FACULTY

Next year Steve Trombulak will assume the directorship of the program. While environmental studies has no additional faculty, a number of fine junior faculty members from several disciplines continue to show interest in the program. These individuals, however, share the concern that after meeting the demands of full-time, departmental responsibilities and active research programs, little time remains for additional commitments -- particularly when there is ambiguity about how such commitments will be evaluated in the formal review process.